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| 10/009,236 | 05/06/2002 | David Blaker | 026032-3873 | 6340 |

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| EXAMINER | |
|---|---|
| JACKSON, BLANE J | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2685 | 7 |

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Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/009,236 | BLAKER ET AL. | |
| | Examiner | Art Unit | |
| | Blane J Jackson | 2685 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *01 February 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 7-18, 20 and 21* is/are rejected.

7)☒ Claim(s) *5,6 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 May 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7, 9, 11-13, 17, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dykema et al. (U.S. Patent 5,854,593) with a view to Roberts et al. (U.S. Patent 5,225,847).

As to claims 1-4, Dykema teaches a wireless transmitter for transmitting a device activation signal or other data for remotely actuating a device, the device activation signal having an RF carrier frequency and a power level, said transmitter comprising:

A controller operable in an operating mode or providing a tune level signal that identifies the RF carrier frequency of the device activation signal (figure 6a, microcontroller (57), a trainable transmitter such as a garage door opener, column 3, line 49 to column 4, line 22),

A signal generator circuit coupled to the controller for generating the device activation signal, such that the RF carrier frequency corresponding to the controller tune level signal is generated, and (VCO (73), column 7, lines 10-58).

Dykema does not teach a detector circuit for detecting the power level of the device activation signal, the detector circuit providing the detected power to the controller.

Roberts teaches an automatic antenna tuning system that generates a tuning signal in response to the detected forward and reverse power level sourced by a transmitter (figure 1, column 1, line lines 41-53). Roberts teaches this information is coupled to a microcomputer control unit to derive an output control signal to tune the impedance of the transmission antenna assembly (column 1, line 65 to column 2, line 9). Since Dykema also teaches a system with a tunable antenna but restricted to the performance of a tabularized value (column 7, lines 16-33), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dykema with the method of Roberts such that the predicted performance is adjusted by detecting actual performance to maximize transmission and reception characteristics.

As to claims 7 and 14, with respect to claims 1 and 11, Dykema teaches a transmitter and transmitter system further comprising a gain circuit coupled to the signal generator circuit for controlling the power level of the device activation signal, the gain circuit being responsive to a gain signal (figure 6a, VGA (74) responsive to GAIN from the control logic circuit (75), column 9, lines 1-11).

As to claims 9 and 16 with respect to claims 1 and 15, Dykema teaches transmitter and transmitter system further comprising a receiving antenna for receiving

an activation signal of a remote transmitter and wherein the controller further includes a training routine module operable to store data corresponding to the original remote transmitter activation signal for generating the output signal such that the device activation signal generated by the signal generator circuit corresponds to the activating signal of the remote transmitter (a trainable remote control using antenna (70), receive circuits and microcontroller (57) to receive, characterize and duplicate the frequency and code, column 3, line 49 to column 4, line 22).

As to claims 11 and 13, Dykema teaches a transmitter system for transmitting a device activation signal that includes an RF carrier frequency, modulation scheme, and data code for remotely actuating a device comprising:

A controller operable in an operating mode for providing an output signal that identifies the frequency and code of the device activation signal (column 3, line 49 to column 4, line 22),

A signal generator circuit coupled to the controller for generating the device activation signal such that the RF carrier frequency and data code corresponding to the controller output signal are generated (figure 6a, column 9, lines 1-18),

A transmission antenna assembly being coupled to the signal generator circuit for transmitting the device activation signal, the transmitted activation signal having a power output (column 7, lines 16-42).

Dykema does not teach a detector circuit for detecting a power level representative of the transmitted activation signal power output, the detector circuit coupled to the controller for providing the detected power level.

Roberts teaches an automatic antenna tuning system that generates a tuning signal in response to the detected forward and reverse power level sourced by a transmitter (figure 1, column 1, line lines 41-53). Roberts teaches this information is coupled to a microcomputer control unit to derive an output control signal to tune the impedance of the transmission antenna assembly (column 1, line 65 to column 2, line 9). Since Dykema teaches a system with antenna tuning to control output power but selected from tabularized data based on received and detected frequency (column 7, lines 16-33 and column 14, line 59 to column 15, line 22), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the wireless remote of Dykema with the power detection and feedback system of Roberts to directly identify the output power, tune the transmitting antenna to maximize its transmission and reception characteristics for each particular frequency in accordance with power levels in local regulations.

As to claim 12, Dykema (and Roberts) teaches the transmission antenna assembly is tunable in response to a tuning signal such that the impedance of the transmission antenna assembly is varied whereby the power output of the transmitted activation signal is controllable (column 7, lines 16-33).

As to claim 17 with respect to claim 16, Dykema teaches the transmitter system further comprising a user interface and wherein the signal generator circuit includes a voltage-controlled oscillator (figures 1-5, user interface: switches (44), (46) and (47), column 6, line 60 to column 7, line 9 and figure 6a, VCO: VCO (73), column 9, lines 1-7).

As to claim 18, Dykema teaches a method of transmitting a device activation signal for remotely actuating a device, the device activation signal having an RF carrier frequency and a power level, comprising the steps of:

providing a transmission antenna assembly having a tunable impedance,

generating the RF carrier frequency,

generating an antenna assembly tuning signal for controlling the antenna assembly impedance (figure 6a, column 7, lines 10-33), and

transmitting the device activation signal.

Dykema does not teach detecting the activation signal power level and adjusting the antenna assembly tuning signal in response to the detected activation signal power level.

Roberts teaches an automatic antenna tuning system that generates a tuning signal in response to the detected forward and reverse power level sourced by a transmitter (figure 1, column 1, line lines 41-53). Roberts teaches this information is coupled to a microcomputer control unit to derive an output control signal to tune the impedance of the transmission antenna assembly (column 1, line 65 to column 2, line

9). Since Dykema teaches a system with antenna tuning to control output power but selected from tabularized data based on received and detected frequency (column 7, lines 16-33 and column 14, line 59 to column 15, line 22), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the wireless remote of Dykema with the power detection and feedback system of Roberts to directly identify the output power and tune the transmitting antenna to maximize its transmission and reception characteristics for each particular frequency in accordance with power levels defined in local regulations.

As to claim 20, with respect to claim 18, Dykema teaches wherein the step of generating the RF carrier frequency further comprises the steps of:

generating a tune level signal for controlling the RF carrier frequency,

generating the RF carrier frequency in response to the tune level signal,

sensing the RF carrier frequency and,

adjusting the tune level signal in response to the sensed RF carrier frequency (training sequence tuning the VCO to sense the correct frequency/ code: column 16, line 48 to column 18, line 14).

2. Claims 8, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dykema et al. (U.S. Patent 5,854,593) and Roberts et al. (U.S. Patent 5,225,847) with a view to Elder et al. (U.S. Patent 6,658,239).

As to claim 8, with respect to claim 7, Dykema and Roberts teach the controller generates the gain signal in response to the duty cycle and frequency to be output from the VCO (column 9, lines 11-18) but do not teach the controller generates the gain signal in response to the detected power.

Elder teaches a wireless transmitter with automatic antenna tuning and a power controller to signal the power amplifier based a reference level and feedback signal of the detected output power (figures 2a, power controller (17) and figure 5b, closed loop power control, column 10, line 65 to column 11, line 7).

It would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Dykema modified with the closed loop power control of Elder to directly determine and maximize output power in accordance with local regulations.

As to claims 10 and 15 with respect to claims 9 and 12, Dykema modified. teaches the transmitter of claim 9 further comprising a gain circuit coupled to the signal generator circuit for controlling the power level of the device activation signal, the gain circuit being responsive to a gain signal provided by the controller (column 9, lines 7-11,

The training routine module being further operable to store a transmission power value where the controller further operable to generate the gain signal is response to the power value.

Dykema modified does not teach where a *starting point* transmission power value from which a target detector voltage is determined and the controller operable to

generate the gain signal in response to the target detector voltage and the detected power level.

Elder teaches a wireless remote transmitter with closed loop power control where a reference level (starting point determining a target detector voltage) (figures 2a and 5b, reference level (61)) is summed with the detected power level (full wave rectifier (63)) to generate the gain signal (column 10, line 65 to column 11, line 7). It would have been obvious to one of ordinary skill in the art at the time of the invention to implement in the training routing of Dykema modified the signaling and power control method of Elder to directly determine and maximize output power in accordance with local regulations.

3. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dykema et al. (U.S. Patent 5,854,593) with a view to Anderson et al. (U.S. Patent 4343,001).

As to claim 21, Dykema teaches a transmitter for transmitting a device activation signal or other data for remotely actuating a device, the device activation signal having an RF carrier frequency and a phase shift, said transmitter comprising:

A controller operable in an operating mode or providing a tune level signal that identifies the RF carrier frequency of the device activation signal (figure 6a, microcontroller (57), a trainable transmitter such as a garage door opener, column 3, line 49 to column 4, line 22),

A signal generator circuit coupled to the controller for generating the device activation signal, such that the RF carrier frequency corresponding to the controller tune level signal is generated, and (VCO (73), column 7, lines 10 – 58).

Dykema does not teach a detector circuit for detecting the phase shift of the device activation signal, the detector circuit providing the detected phase shift to the controller.

Anderson teaches a tuned electrically small antenna whereby a microprocessor receives a new frequency to be used, looks up in a table the expected tuning capacitance, switches the appropriate value into the circuit at the antenna, examines the output of a phase discriminator to determine an error signal of the input frequency and tuned circuit and determines an appropriate value change if any (figure 2, discriminator (20), antenna (), column 3, lines 46 to column 4, line 32). Since Dykema also teaches a system with a tunable antenna but restricted to the performance of a tabularized value (column 7, lines 16-33), it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dykema with the method of Anderson such that the predicted performance is adjusted by detecting actual performance to maximize transmission and reception characteristics.

### ***Allowable Subject Matter***

4. Claims 5, 6 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Tigwell (U.S. Patent 6,021,319)

discloses a remote control system having a universal transmitter capable of being programmed. Dykema (U.S. Patent 6,091,343) discloses a trainable trainable transmitter capable of learning and replicating both AM and FM signals. Suman et al. (U.S. Patent 5,903,226) discloses a trainable RF system for remotely controlling household appliances. Suman et al. (U.S. Patent 5,793,300) discloses a second variation of a trainable RF system for remotely controlling household applicances. Duckworth et al. (U.S. Patent 5,646,701) discloses a trainable transceiver provides an integrated trainable transmitter and control system receiver for a vehicle electrical system. Dykema et al. (U.S. Patent 5,699,055) teaches a trainable transceiver with a tuned loop antenna. Duckworth (U.S. Patent 5,699,054) discloses a trainable transceiver including a dynamically tunable antenna.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Owen (U.S. Patent 5,263,183) discloses a radio antenna tuning circuit based on a phase detector to compare the phase of the signal established in the antenna tuned circuit and the excitation signal to produce an error signal.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J Jackson whose telephone number is (703) 305-5291. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJJ

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